



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/043,171	03/12/1998	STEPHEN MCLAUGHLIN	36-1136	6305

7590

05/07/2003

NIXON & VANDERHYE
1100 NORTH GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 222014714

EXAMINER

AZAD, ABUL K

ART UNIT

PAPER NUMBER

2654

20

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/043,171

Applicant(s)

MCLAUGHLIN ET AL.

Examiner

ABUL K. AZAD

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Response to Amendment

1. This action is in response to the communication filed on February 19, 2003.
2. Claims 1-11 and 16-18 are pending in this action. Claims 1, 3, 6, 8 and 18 have been amended.
3. The applicant's arguments with respect to claims 1-11 and 16-18 have been fully considered but they are not deemed to be persuasive. For examiner's response to the applicant's arguments or comments, see the detailed discussion in the Response to the Arguments section.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 1-4, 7-11 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Otsuka et al. (US 5,745,651).

As per claim 1, Otsuka teaches, "a method of generating a cyclic sound waveform corresponding to a sequence of substantially similar cycles," comprising the steps of:

Art Unit: 2654

“(a) generating a cyclical sound waveform sample” (Abstract, col. 4, line 46 to col. 5, line 4);

“(b) generating a successive cyclical sound waveform sample from said cyclical sound waveform sample and transformation data, wherein said transformation data comprise data defining the evolution of the said cycles in the temporal vicinity of said cyclical sound waveform and the change in shape of said cycles in said temporal vicinity from cycle to cycle” (col. 2, lines 13-54, Fourier transform is performed on the resultant, transformed sample value to provide a pitch waveform, Fig. 15, element S317, where claimed limitation reads on “generate and connect pitch waveform for Ith frame);

“(c) designating said successive cyclical sound waveform sample as a cyclical sound waveform sample and repeating (b)” (col. 2, lines 13-54, reads “since a parameter that is acquired at specific sampling frequency is employed to generate pitch waveform for arbitrary sampling frequencies and to link them together, synthesized speech for an arbitrary sampling frequency can be generated by simple method”, Fig. 15, element S317 generated pitch wave form for each frame, so step b will be repeated);

“(d) repeating (c) a plurality of times to generate a sequence of said successive cyclical sound waveform samples corresponding to a plurality of said cycles” (col. 2, lines 13-54, Fig. 15, element S316);

“(e) outputting the samples of said sequence to generate a waveform” (col. 2, lines 59-64, a speech waveform can be generated by using a parameter in a frequency range).

As per claim 2, Otsuka teaches, "said waveform comprises voiced speech" (Abstract).

As per claim 3, Otsuka teaches, "in which said transformation data does so by reference to a predetermined reference waveform sequence" (col. 2, lines 35-54, Fourier transform is performed on the resultant, transformed sample value to provide a pitch waveform)

As per claim 4, Otsuka teaches, "in which said reference waveform sequence comprises a stored speech waveform" (col. 4, lines 37-67).

As per claim 7, Otsuka teaches, "in which a given successive waveform sample is derived in accordance with data from a point on said reference waveform sequence at a position within a said cycle which corresponds to that of said given successive waveform sample, and at least one other point on said reference waveform sequence offset in time therefrom" (col. 7, line 19 to col. 8, line 65).

As per claim 8, Otsuka teaches, "in which said step (b) comprises calculating said transformation data from a set of stored waveform values" (col. 4, lines 37-67).

As per claim 9 and 11, Otsuka teaches, "in which the initial performance of said step (a) to initial synthesis of said waveform comprises a step of selection of an initial value which differs from a previous initial value selected on a previous synthesis of said waveform." (col. 8, lines 26-45).

As per claim 10, Otsuka teaches, "in which said step comprises applying a pseudo random number generation algorithm to select said value" (col. 7, lines 45-54).

As per claim 18, it is interpreted and thus rejected for the same reasons set forth in the rejection of claim 1.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 6, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al. (US 5,745,651) in view of Kleijn et al. (Speech Coding and Synthesis).

As per claim 16, Otsuka teaches, "a method of generating a synthetic voiced waveform," said method comprising:

"storing data defining n-dimensional state space representations of voiced speech signals, in which successive voiced speech pitch pulse cycles are superimposed to provide a model of voiced speech dynamics" (col. 4, line 24 to col. 5, line 4);

"selecting a synthesized waveform starting point in said n-dimensional state space representation for a predetermined voiced speech waveform that is offset from said stored data by an offset vector" (col. 7, line 35 to col. 8, line 58);

"selecting successive further synthesized waveform points in said n-dimensional state space representation for said predetermined voiced speech waveform that are

Art Unit: 2654

also respectively offset from said stored data in dependence jointly upon the preceding point in the synthesized sequence nearest other stored points in state sequence space and an offset vector therefrom" (col. 7, line 35 to col. 8, line 58);

"repeating (b) and (c) for plural voiced speech cycles and outputting the resulting sequence of thus synthesized waveform points to generate a voiced speech waveform" (col. 7, line 35 to col. 8, line 58).

Otsuka does not teach that n being an integer having a value at least three. However, Kleijn teaches the above limitation (Pages 584-586). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide Otsuka with $N=3$ as taught by Kleijn because Kleijn teaches that an $N=3$ deterministic system can reproduce a naturally sounding voiced speech waveform.

As per claim 17, it is interpreted and thus rejected for the same reasons set forth in the rejection of claim 16.

As per claim 5, Otsuka does not explicitly teach, "in which said steps (a) and (b) comprise generating a plurality of values representing said waveform sample values as a point in a multidimensional space in which corresponding portions of successive said cycles are substantially superposed". However, Kleijn teaches the above limitation (Pages 584-586). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide Otsuka with $N=3$ as taught by Kleijn because Kleijn teaches that an $N=3$ deterministic system can reproduce a naturally sounding voiced speech waveform.

As per claim 6, Otsuka teaches, "in which said data defining said transformation does so by reference to a predetermined reference waveform sequence and in which said transformation data represents a transformation . . . successive to the first, on said reference waveform sequence to a corresponding second point on the waveform to be synthesized" (col. 7, line 19 to col. 8, line 65).

Response to Arguments

8. The applicant argues: "the examiner fails to show, in (a) how Otsuka et al. describes the generation of cyclical sound waveform sample . . . "substantially similar cycles" matters, since "said cycles" are referred to in the section of the claim".

The examiner disagrees with the applicant's assertion, because Otsuka teaches the generation of cyclical sound waveform sample at Fig. 15, element S316, or col. 19, line 4 to col. 20, line 32. yes, "substantially similar cycles" is matter, that limitation is teaches at Fig. 15, element S317, where claimed limitation reads on "generate and connect pitch waveform for I th frame, where pitch waveform is substantially similar cycles.

9. The applicant further argues: "Examiner has fails to show how Otsuka et al. teaches or suggests (b) or (c) or describes the generation of successive cyclical sound waveform sample".

The examiner disagrees with the applicant's assertion, because Otsuka teaches the generation of cyclical sound waveform sample at Fig. 15, element S316, or col. 19, line 4 to col. 20, line 32.

10. Applicant's arguments with respect to claim 5 have been considered but are moot in view of the new ground(s) of rejection.

11. In response to applicant's arguments to claims 16 and 17 against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Abul K. Azad** whose telephone number is **(703) 305-3838**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Marsha D. Banks-Harold**, can be reached at **(703) 305-4379**.

Any response to this action should be mailed to:

Commissioner for Patents

Washington, D.C. 20231

Or faxed to:

(703) 872-9314

(For informal or draft communications, please label "PROPOSED" or "DRAFT")

Art Unit: 2654

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center's Customer Service Office whose telephone number is **(703) 306-0377**.

Abul K. Azad

May 4, 2003

Marsha D. Banks-Harold

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600